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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,813	02/23/2004	Seiki Takahashi	023971-0370	5466
22428	7590	07/13/2007		
FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER PIPALA, EDWARD J	
			ART UNIT	PAPER NUMBER
			3663	
			MAIL DATE	DELIVERY MODE
			07/13/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/782,813	<b>Applicant(s)</b> TAKAHASHI ET AL.	
	<b>Examiner</b> Edward Pipala	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,12,14-16 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12,14-16 and 19-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office action is in response to Applicant's request for continued examination filed 4/26/07, and the telephonic interview of 5/7/07.

Claims 1, 4-10, 12-16 and 19-27 are presently pending.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/29/07 has been entered.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-10, 12, 14-16 and 19-27 are still rejected under 35 U.S.C. 102(e) as being anticipated by Seto et al. (US Pub. 2003/0067219 A1) .

Independent claims 1 and 10 recite an automatic braking system for a vehicle comprising a forward-monitoring unit that automatically detects an obstacle preceding the vehicle and a control unit that varies an assumed characteristic of manual steering and executes an automatic braking control operation to avoid a potential collision with the obstacle based on the previously assumed manual steering operation characteristic.

Independent claim 12 likewise recites an automatic braking system for a vehicle comprising: a forward-monitoring unit that automatically detects an obstacle preceding the vehicle, and a geometrical relationship among the vehicle, the obstacle and a path where the vehicle is traveling; and a control unit that varies an assumed characteristic of manual steering and executes an automatic braking control operation to avoid a potential collision with the obstacle based on an assumed manual steering operation of the vehicle and the geometrical relationship; and a brake control unit that generates a braking force according to the automatic braking control operation determined by the control unit.

The Seto et al. publication specifically discloses an automatic braking system for a motor vehicle wherein it is judged that a possible collision of the own vehicle with a preceding vehicle is avoidable by operation of either of the brake pedal or the steering wheel, and subsequently applies a braking force when it is judged that the possible collision is unavoidable by operation of either the brakes or by steering. Figure 1 of Seto et al. discloses the use of a forward-monitoring unit in the form of the laser radar unit (1), a control unit (10) and a braking force control device (15). Furthermore, figures

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3 and 4 show a geometrical relationship being established and determined between the own vehicle and the preceding vehicle. Please also see figures 5 and 6 which relate to steering speed (manually operation dependent) and tire slip angle (a characteristic of the state of the vehicle). These aspects are also disclosed and discussed in sections [0052-0053] of Seto et al. Furthermore, with respect to determining the steering characteristics based upon the condition of the path upon which the vehicle is traveling, please again refer to figures 3 and 4 which show the condition of the road as being partially blocked in figure 4 whereas in figure 3 there still seems to be space available to each side of the preceding vehicle.

With respect to claims 4-5, 7, 19-22 and 27, which recite in increasing detail steering avoidance by passing on either the left or the right sides of the obstacle based on the steering characteristics of the vehicle, detecting an avoidance space width, a necessary lateral displacement needed to carry out the pass, that the steering characteristics dependent on the state of the vehicle are based on at one of a weight, yaw moment, vehicle speed, yaw rate, vehicle slip angle..., please see figure 7 which relates time needed to avoid a collision with vehicle speed and needed lateral distance, as well as sections [0024-0059].

With respect to remaining claims 6, 8, 9, 14-16 and 23-26, which additionally relate to the easiness with which steering avoidance and braking avoidance can be accomplished, please further see sections [0059-0075] which disclose the manner in which judgments are made with respect to whether to avoid a potential collision by

braking or steering depending on how much time is available for braking, the amount of avoidance space in the form of a lateral distance is needed to make a pass to either side possible, selection of the side with the greatest space available, and the distance  $d$  to the preceding vehicle. The relative "easiness" being a function of the magnitude of the distance to the vehicle, the relative speed of the vehicle when considering a steering avoidance maneuver, the slip angle of the tires which would be in effect for such a maneuver, and the speed with which a driver would have to move the steering wheel in order to accomplish a steering based avoidance maneuver before the braking time available may come to a catastrophic end.

### ***Response to Arguments***

4. Applicant's arguments filed 3/29/07 have been fully considered but they are not persuasive.

Applicant has further amended the independent claims so as to now associate the "assumed characteristic" with manual operation of the steering wheel upon the detection of a preceding vehicle, and an automatic braking operation based on the now recited assumed manual steering operation characteristic.

In the above rejection it has been noted that sections 0059-0075 disclose the manner in which judgments are made with respect to whether to avoid a potential collision by braking or steering depending on how much time is available for braking, the amount of avoidance space in the form of a lateral distance is needed to make a pass to

either side possible, selection of the side with the greatest space available, and the distance  $d$  to the preceding vehicle. These are the inherent considerations of "assumed steering characteristics" which are being taught by Seto et al., where section 0037 further teaches the considerations for braking and sections 0040 through 0053 clearly teach and disclose the numerous "considerations" which affect the steering characteristics which are "assumed" or "varied" on a constant updated basis in conjunction with the detected dynamic state of the vehicle and its proximity to a preceding vehicle and the allowed space detected to each side thereof.

Sections 0073-0075 clearly disclose determining the relative speed of the vehicles, determining the angles with respect to the right and left rear edges of the preceding vehicle (where the smaller angle is selected), and calculating the lateral distance "Y" needed to avoid the preceding vehicle by steering and braking adjustments.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Edward Pipala', with a stylized, cursive script.

Edward Pipala

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ejp